

What is claimed is:

1. A nonaqueous secondary battery having a compound of the general formula (1):



where A is Cu, Ag or Au, and $0.4 \leq a \leq 5$,
as an active material of a negative electrode.

2. The nonaqueous secondary battery of claim 1, wherein the element A of the compound is Cu or Ag.

3. The nonaqueous secondary battery of claim 2, wherein the element A of the compound is Ag.

4. The nonaqueous secondary battery of claim 1, wherein the number a of the compound is $0.6 \leq a \leq 2$.

5. The nonaqueous secondary battery of claim 1, wherein the compound is selected from the group consisting of CuS, Ag₂S, ~~3Ag₂S=Ag₂S~~, Cu₂S, AuS, and ^{Au_{0.5}S} ~~Au₂S~~.

6. A nonaqueous secondary battery having a compound of the general formula (2):



where B and D are different from each other, and are each selected from the group consisting of Cu, Ag, Au, Zn, Al, W and Li, $0.001 \leq b \leq 0.999$, and $0 < y < 2$,

as an active material of a negative electrode.

7. The nonaqueous secondary battery of claim 6, wherein at least one of the elements B and D of the compound is Cu, Ag or Au.

8. The nonaqueous secondary battery of claim 7, wherein the element B or D of the compound is Ag.

9. The nonaqueous secondary battery of claim 6, wherein the number y of the compound is $0 < y < 1$.

10. The nonaqueous secondary battery of claim 6, wherein the compound is selected from the group consisting of Ag_{0.09}Zn_{0.91}S_{0.95}, Ag_{0.5}Zn_{0.5}S_{0.75}, Ag_{0.9}Al_{0.1}S_{0.6}, Zn_{0.91}Cu_{0.09}S_{0.955},

Ag_{0.9}Zn_{0.1}So_{0.55}, Li_{0.5}Ag_{0.5}So_{0.25}, Li_{0.5}Au_{0.5}So_{0.25}, Li_{0.5}Cu_{0.5}So_{0.25},
and Li_{0.67}Cu_{0.33}So_{0.67}.

11. A nonaqueous secondary battery having a compound of the general formula (3):



where E, G and J are different from each other, and are each selected from the group consisting of Cu, Ag, Au, Zn, Al, W, Li and Mg, M is Ca, Sr, Na, K, Rb, O, F, Cl, Br or I, $0.001 < e < 0.999$, $0.001 < g < 0.999$, $0 \leq m \leq 0.2$, $0 < z < 2(1+m)$,

as an active material of a negative electrode.

12. The nonaqueous secondary battery of claim 11, wherein at least one of the elements E, G and J of the compound is Cu, Ag or Au.

13. The nonaqueous secondary battery of claim 12, wherein the element E, G or J of the compound is Ag.

14. The nonaqueous secondary battery of claim 11, wherein the element M of the compound is Sr, O, F or Cl.

15. The nonaqueous secondary battery of claim 14, wherein the element M of the compound is O or Cl.

16. The nonaqueous secondary battery of claim 11, wherein the number z of the compound is $0 < z < 1.5(1+m)$.

17. The nonaqueous secondary battery of claim 16, wherein the number z of the compound is $0.2(1+m) < z < (1+m)$.

18. The nonaqueous secondary battery of claim 11, wherein the compound is selected from the group consisting of Ag_{0.09}Zn_{0.901}Mg_{0.009}So_{0.94}, Ag_{0.083}Zn_{0.834}Mg_{0.083}So_{0.92}, Ag_{0.901}Al_{0.09}Mg_{0.009}So_{0.5945}, Ag_{0.834}Al_{0.083}Mg_{0.083}So_{0.6245}, Ag_{0.901}Al_{0.09}Mg_{0.009}So_{0.5945}O_{0.2}, Ag_{0.901}Al_{0.09}Mg_{0.009}So_{0.5945}Cl_{0.2}, Ag_{0.09}Zn_{0.901}Mg_{0.009}So_{0.94}O_{0.2}, and Ag_{0.09}Zn_{0.901}Mg_{0.009}So_{0.94}Cl_{0.2}.

19. An energy storage device having a compound of any of the general formulae (1) to (3)

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A_aS (1)

$B_bD_{(1-b)}S_y$ (2)

$E_eG_gJ_{(1-e-g)}M_mS_z$ (3)

where A is Cu, Ag or Au; $0.4 \leq a \leq 5$; B and D are different from each other, and are each selected from the group consisting of Cu, Ag, Au, Zn, Al, W and Li; $0.001 \leq b \leq 0.999$; $0 < y < 2$; E, G and J are different from each other, and are each selected from the group consisting of Cu, Ag, Au, Zn, Al, W, Li and Mg; M is Ca, Sr, Na, K, Rb, O, F, Cl, Br or I; $0.001 < e < 0.999$; $0.001 < g < 0.999$; $0 \leq m \leq 0.2$; and $0 < z < 2(1+m)$,

as an active material of a negative electrode.

20. An electric energy storage device having a compound of any of the general formulae (1) to (3)

A_aS (1)

$B_bD_{(1-b)}S_y$ (2)

$E_eG_gJ_{(1-e-g)}M_mS_z$ (3)

where A is Cu, Ag or Au; $0.4 \leq a \leq 5$; B and D are different from each other, and are each selected from the group consisting of Cu, Ag, Au, Zn, Al, W and Li; $0.001 \leq b \leq 0.999$; $0 < y < 2$; E, G and J are different from each other, and are each selected from the group consisting of Cu, Ag, Au, Zn, Al, W, Li and Mg; M is Ca, Sr, Na, K, Rb, O, F, Cl, Br or I; $0.001 < e < 0.999$; $0.001 < g < 0.999$; $0 \leq m \leq 0.2$; and $0 < z < 2(1+m)$,

as an electrode material for an electrochemical capacitor.

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a'
Add c'
Add E2

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